TELLING IT LIKE IT IS: DIGI JOURNEYS

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Abstract

A culture of change is needed to deliver education that will provide learners with the appropriate knowledge and skills to effectively function as global citizens. New opportunities for learning are constantly being created through the emergence of new technologies and through new ways of using the Web. In order to prepare citizens for the 21st century, educators need to understand the shifts in the way knowledge is organised and constructed. Educators are constantly being challenged to identify the particular features and learning strategies that comprise effective contemporary learning environments. This paper will outline and examine learning strategies using information and communication technology (ICT) through the use of digi journeys as a component of a larger education department ICT project. Focus groups and interviews are used to identify characteristics of contemporary learning environments. Digi journeys, as told by classroom teachers, describe the successful use of ICT to enhance and improve student learning. They also serve to highlight the varying experiences of teachers in their journey of successful integration related to high quality contemporary learning.

Introduction

Current and emerging technologies are forcing educators to rethink how best to prepare their students for the demands and challenges of the 21st century. What skills and processes are useful in preparing students to be effective global citizens? What should our 21st century schools look like? Our current notions still think of it as being a place or space for learning to occur (Partnership for 21st Century Skills, 2009). However, educators are being challenged to shift their thinking to consider classrooms as including “experiences, experts, collaborators, peers and resources located all over the globe and available twenty fours hours a day” (Johnson, Levine, Smith, Smythe, & Stone, 2009); thus providing students with the best possible way of taking into account the unique learning needs and interactive nature of the current environment. This learning which may be formal or informal, exists in contexts that promote interaction and thus a sense of community (Partnership for 21st Century Skills, 2009).

As our world becomes more interconnected and complex there are more demands on society and on our knowledge economy for continuous learning (Brown, 2006). Twenty-first century education offers opportunities for creating new learning and teaching possibilities through engaging students in ways not previously possible. Today’s students are increasingly living and thriving in the digital world (Ministerial Council on Education Employment Training and Youth Affairs (MCEETYA), 2005) and have a new ‘digital vernacular’ (Brown, 2006) leading to differences in the way students think about learning. As the emphasis shifts towards preparing students as global citizens, students should be given the opportunity to develop the “capabilities, dispositions and literacies required to participate in society and to deal with the complexities of issues and change” (MCEETYA, 2005, p.5).

Contemporary learning environments

Technology plays a key role in how students play, learn, gain information and interact with others.
Educators are challenged to find ways of tapping into the natural curiosities of students allowing them to do more learning on their own (Brown, 2006). Our schools are slowly changing but are struggling to understand what contemporary learning environments might look like. This is complicated by the fact that current students will not have a fixed single career and their working life will probably encompass multiple careers which suggest that the skills needed are unlikely to be those learned in a school setting (Brown, 2006).

In Australia many students are already immersed in 21st century communities through the social networks and are therefore entering the classrooms with preconceived ideas of how society operates and what technologies they can expect to use in the classroom (Partnership for 21st Century Skills, 2002). Today’s students are likely to know more about technology and how to manipulate it to serve their own purpose than teachers (Prensky, 2007). Digitally literate students often develop the skill of intuitively finding information on the web that teachers often labour over to find. This skill gives them the advantage in the context of productive inquiry to explore vast quantities of resources on the web (Brown, 2006), but they often lack the skill to critically evaluate the information. This being said however, it is recognized that not all students have the same exposure to technology and therefore do not have the same skills.

Teachers require guidance to “help students apply technologies wisely to real problems” (Prensky, 2007, p.42) and exploit the affordances of the technologies which will support them to use prior knowledge to build new understanding. Students seek interactivity in their learning as current technologies shape student “expectations and their ability to access, acquire, manipulate, construct, create and communicate information” (MCEETYA, 2005). Students should be inspired to be creative problem solvers and critical thinkers to prepare them for today’s society (Partnership for 21st Century Skills, 2009).

The design and planning of the school curriculum is critical in the creation of learning environments that will allow students to thrive. The design should be flexible as it can either inhibit or enhance the learning. The curriculum should be designed for “relevance, understanding, rigor and depth, engaging all students in authentic learning” (MCEETYA, 2005). Innovation and effective use of the technologies will lead to transformative pedagogies which empower students to take responsibility and control over their learning. These learning spaces will differ as they seek to align and synergize the unique powers of technology by providing challenging and stimulating learning opportunities. Technology which is seen by students as a ubiquitous and transparent part of their lives (Johnson, Levine, Smith, Smythe, & Stone, 2009) can increasingly provide an avenue for empowering them to explore, discover, present and communicate.

Digi journeys are told by classroom teachers about their journey with technology and are presented as a means of showcasing stories of successful information and communication technology (ICT) integration towards developing contemporary learning environments. These digi journeys emerging out of teacher interviews are one component of a larger three year research project by the education department across four government schools focused on delivering contemporary learning through the use of ICT. The use of digi journeys identify instances where technologies have been integrated to engage students in meaningful and relevant learning experiences and that have led to a transformation of the learning. They stimulate student engagement and encourage the development of critical thinking, problem solving and collaborative skills which are skills essential to our knowledge economy. These journeys are the voices of classroom teachers who have a story to tell about their growing confidence with technology and how it has made a difference to student learning. These stories also highlight the shift in teacher’s pedagogies towards creating a more student centred environment.

Background

Students should be given the skills that will equip them for the 21st century and thus educators ought to explore best practices by integrating appropriate technologies. A number of constructivist principles
have furthered our understanding of appropriate strategies that guide the design of effective learning environments. Technologies support both cognitive and social constructivist approaches. The challenge that these theories present, is not to replicate the conventional classroom but to understand how technology can be utilised to create reflective and effective learning communities (Garrison, 1997).

Jones (2004) in his review of the research literature identified a number of actual and perceived barriers to the uptake of ICT by teachers. One of the key determinants was the teachers’ level of engagement with ICT and their level of confidence in using the technology (Jones, 2004). Other factors included the level of access to ICT and the appropriateness of the professional development in not only addressing the technical skills but also the pedagogical aspects related to effective ICT integration. The lack of time needed to prepare, particularly when multimedia and online materials were used, proved to be an issue. When using ICT, teachers also wanted the assurance that the technology would work and that technical support was readily available if needed.

The use of ICT frequently brings additional stress to novice users. However by ensuring effective professional learning staff can feel valued, gain confidence and thus become willing to take risks. Well designed professional development training in the use of ICT is essential to meet the needs of today’s teachers who want to integrate ICT in their teaching, but who also learn in different ways and thus need flexibility around the support available to address their own preferences for learning (Condie, Munro, Seagraves, & Kenesson, 2007).

Teachers’ pedagogies have also been shown to affect students’ achievements and are influenced by such factors as the type of technologies chosen, the ways they are utilized and the extent to which teachers plan and prepare for the integration (Cox et al., 2003). It is important that ICT use is directly linked to curriculum planning and outcomes, and that they are a common aspect of the classroom experience. Although, frequently cited findings suggest that the use of ICT leads to increased motivation and improved engagement, this increased motivation does not necessarily lead to higher achievement. Rather, achievement outcomes must be linked to such variables as “the development of learner autonomy and higher order cognitive skills” (Davies, Hayward, & Lukman, 2005).

The study

This study reports on some of the data collected from teacher focus groups, but more specifically from teacher interviews, where teachers have provided examples of successes in their classroom using ICT. Four digi journeys of teachers from 2 primary schools with very different student populations are summarized, and discussed in relation to what constitutes contemporary learning for students and, what educators value and measure as achievement. School X is in the western suburbs with a population of approximately 460 students whose background tends to be middle class but with 52% coming from non English speaking backgrounds. The other school (School Y) has a population of approximately 200 students primarily from a lower socio economic background (approximately 65% are on school card) and with a similar population of 51% coming from non English speaking backgrounds. In addition, data collected from both schools indicate a marked difference in ownership of home computers with over 90% ownership in School X and less than 60% in School Y. The teachers also vary in their degree of confidence and competence with technology.

Prior to the individual interviews, 4 focus groups were held during which time teachers brainstormed what they considered contemporary learning environments looked like. Many characteristics identified by the teachers can be found in the current research literature on 21st learning environments (Brown, 2006; MCEETYA, 2005; Partnership for 21st Century Skills, 2002). In particular the teachers identified the following characteristics as being critical:

- Achievement of high quality learning outcomes
- Learning as dynamic and evolving
- Inquiry approaches that foster independence, interdependence, critical thinking and problem
solving

- High interest using relevant and meaningful contextual material
- Student capacity to pursue lifelong learning beyond the classroom
- Outcomes that are made explicit
- Personalization to cater for the varying needs and styles of the students
- Opportunity to show individual growth of knowledge and understanding
- Cooperative collaboration and learning as a partnership (student/parent/teacher)
- Teachers as learners
- Flexibility of space and access to technology (including the latest)
- Valuing what students bring to the learning through knowing the students
- Student ownership of their learning, including their accountability
- Encouraging students to take risks
- Integrated rather than segmented learning
- Emotional wellbeing and encouraging ‘you can do it’ mentality
- Preparing students as citizens of today’s world

New and current technologies were seen as necessary in achieving many of the above characteristics and in ensuring that learners are equipped with 21st century skills. It was felt that many learners expect technology to be part of their learning experience.

Digi journeys

Many of the characteristics of contemporary learning environments identified by the focused groups are evident in the following digi journeys which are brief summaries from the individual interviews of four teachers.

Teacher A who has a Reception /Year 1 class in School Y and is a relatively competent user of ICT introduced an online program “ABC Reading Eggs” to support her students with their reading. This program has proved to be engaging and motivating and the students are having fun while often not realizing that they are learning to read. The program provides explicit one to one teaching which is needed in developing literacy skills, while also providing instant feedback or gratification which they love. “ABC Reading Eggs”, although recognized as being just one of the many tools, has had an impact on the students’ literacy. It has allowed the students to work at their own level and pace and has catered for the different ways in which students learn by presenting the information in various forms using phonics, words, visuals and movement. The students create their own avatar and as they complete the various levels they collect eggs. Once they have collected a certain number of eggs they are able to buy things such as clothes or furniture for their avatar. This is a great motivator. Although the students work individually on the program, a popular culture of sharing has evolved with interactions around what they are doing and what they have learned. This is also partly due to the fact that they are all working on the program in the computer room. Although the students do use the small number of computers in the classroom the teacher finds that by having the students all working on the program at the same time that she is able to better monitor their progress and assist those with poorer literacy skills. Also students who have moved on to the next level through repeated clicking without understanding can be put back a level or two. There have been unexpected outcomes such as students learning their colours and students wanting to read at home with their parents where previously this had not happened. The teacher feels that this program is moving towards developing a meaningful learning environment for developing their literacy skills. However she continues to seek other ways of using ICT and is currently trialing the use of an ipod in the classroom.

Certain features of a contemporary learning environment are evident in this digi journey. The learning is dynamic and engaging with a personalisation of the students’ own learning experience while
catering for different styles of learning and allowing them to progress at their own pace. Students are challenged and excited about their learning and are thus creating a community of learners. As it is an online program students have the flexibility to also work on it when they wish outside the classroom.

Teacher B, also from School Y, who has a Year 4/5 class, has been trialing the use of Classmate computers. At the beginning, the teacher had to teach the students file management skills as they had their files as a long list. Having learned to create various folders the students can now save their work in appropriate named folders so that they and the teacher can easily find their work. Initially the teacher found that he was giving more direct instructions to do this or that, but has found that he has changed the way he plans his lessons as he sees the computer as a tool which students may or may not choose to use. The students can decide whether they use the Classmates for their activities, or whether they prefer paper and pencil. In a normal day the Classmates are used 50-60% of the time. Generally students are more engaged and ‘switched on’ when using the computer. However monitoring is critical as the teacher needs to know what they are doing and whether they are on task or playing games. Although there is a master program for monitoring students the teacher prefers to walk around the class and observe. Some examples of the way the students are using the Classmates include:

- Creating character webs about the class novel using Inspiration
- Taking pictures with the web cam and telling a story using Comic Life
- Using Moodle for online lesson activities
- Creating a communication forum called ‘Penny for your thoughts’ where the student can share thoughts and experiences with the teacher
- Using email to upload their written work or respond to teacher’s questions
- Using programs such as “Mathletics” and “Targeting Maths”.

Although the teacher has learned to fix little things, regular and reliable technical support is essential. The teacher finds that he is learning new things from the students as well as hearing about new programs from his colleagues which he might like to trial.

In this example students are given more control over their learning and the way they present their work thus catering for their individual styles and competence level. Collaborative learning is encouraged and students are encouraged to take risks. They are learning some of the skills required of a global citizen, particularly through the use of internet communication tools. The teacher also sees himself as a learner.

Teacher C has a Year 6/7 class in School X and is using Edublogs as a place where students can put their learning ‘out there’. The blogs are an integral part of the units of work, with students being given a purpose to use them. For example, they may be used to reflect on discussions which they have had with their parents on a particular topic relevant to the unit. All class members have their own blog which is linked to a class blog. The class blog provides links to resources and outlines what the class is doing in their learning so that parents can also see what is happening. The blogs are public but are not searchable by Google and no photos or real names are used on the blog. Each student has their own identity which is known by other class members. The blog is a repository for class work and reflections and becomes a venue where students go to learn. Teachers gain insights into student learning through their blogs while also gaining insight into what is happening in their personal lives as students use their blog for communication during the holidays. There was some dilemma for the teacher about personal information that might be posted as well as concerns about inappropriate postings. Generally this has not been a problem and when it did occur it was turned into a learning experience for all. The blog helps students develop a sense of responsibility in a safe environment while learning how to be good digital citizens. As a contemporary learning tool the blogs provide accessibility, keep students up to date if they were away and provide a way of expressing themselves. An example was given of a reluctant writer.
who by being able to write about personal things gradually became a keen writer due to the freedom that was originally given. All comments are moderated and the teacher would ideally like each student to have a mentor who can respond to their posting and challenge them. As it is very time consuming for the teacher to provide comments on all the students’ postings parents were invited to regularly visit the blogs and provide comments. Initially some parents responded but this has dwindled. A further outcome has been the strengthening of a community of school learners.

Students through the use of a safe environment are learning to be good digital citizens. They are learning in a dynamic and evolving environment where collaboration is encouraged. High quality learning outcomes are achieved and documented through this medium where independence, reflection and critical thinking are fostered. Problem solving and lifelong learning skills are developed with the opportunity to demonstrate individual growth and understanding. This environment also gives the students control over their own learning which extends outside the classroom and during holidays.

Teacher D is a Year 1/2 teacher in School X whose attendance at a ‘Digi Kids’ course provided a real incentive to utilize ICT to support his teaching and student learning. Prior to attendance at this professional development course he had a negative attitude towards ICT and considered it as an additional subject that needed to be fitted into a crowded curriculum. The course did not set out to change his beliefs and pedagogy which was very important to him but showed him how ICT as a tool could help him. This led to a change in attitude towards ICT. Attendees were exposed to and learned a number of programs, but the one that had the most impact for him was “Bee Bots”. Bee Bot which is a programmable floor robot was a huge success with the students where they learned how to program the Bee Bot’s movements. It provided an opportunity to discover different things such as: when looking at the grid on the interactive whiteboard they discovered that after the Bee Bot had reached the top of the board and performed an about face, that the left and the right also changed. Through further exploration they realized that north, south, east and west did not change. Such incidental learning was regularly evident. The Bee Bots were used across the curriculum: the students created and decorated their own mats for the Bee Bot and then related the story of what the Bee Bot was experiencing as it moved around the mat; programming instructions were given in German for language classes; the students learned to accurately measure and create a grid in maths. The use of the Bee Bot involved a lot of problem solving and discussion, such as, programming two Bee Bots to dance which required close collaboration. Bee Bots are highly motivational and have given students ownership of their learning. “Digi Kids” gave Teacher D confidence with ICT and enabled him to take greater risks when using other ICT tools.

This example relates the journey of a teacher in his integration of ICT, as much as it shows how students are learning through the use of an ICT tool in a contemporary learning environment. The integration of technology was in response to the appropriateness of a professional development course at that time. Students work collaboratively in a highly motivating environment where problem solving and critical thinking skills are developed. The teacher also sees himself as a learner but before this professional experience course was rather cynical about the use of technology and saw it as another thing to fit into the curriculum.

Conclusion

The narration of these journeys should give classroom teachers confidence that with appropriate support and guidance and clear learning outcomes that technology can enhance student learning and increase motivation to achieve the desired outcomes. These digi journeys have outlined successful use of ICT tools that address some of the characteristics seen as constituents of contemporary learning environments. Students were challenged and engaged to achieve high quality learning outcomes.
through regular access to ICT tools. In a number of the digi journeys their learning was personalized giving them control over what they were doing while catering for their various needs and learning styles. Students were challenged to think critically and to problem solve to achieve positive outcomes. Teachers as learners also gained confidence in the use of ICT and were more willing to take risks and explore the benefits of other technologies. It also highlighted the importance of technical support and adequate and relevant professional development. A strong outcome in all cases was the development of collaborative skills and the community of learners where students were eager to share and communicate what they were learning with their peers, and in many cases with parents.

Although not evident in the digi journeys underpinning these journeys was the importance of co-planning with their colleagues. This was seen as critical in both schools where staff were given time to plan together and share in larger teams what they were doing. Similarly strong school leadership ensured that teachers had access to relevant professional development. They were also instrumental in ensuring that the infrastructure supported ICT integration. Providing funds and time for ongoing professional development, and the support and encouragement of the leadership has been a key feature of both schools.

These digi journeys have portrayed teachers at different stages of their journey in their confidence and use of ICT. However it has highlighted that a certain amount of competence with ICT is needed for teachers and students to take risks. In all cases there were incidental learning outcomes that had not been predicted. The journeys showed that for some of the teachers it was still important that they felt they had control over when, where and how ICT was used. Although these digi journeys bring us a step closer to understanding the role that ICT must play in equipping students as global citizens, the challenge remains to explore and implement the delivery of learning that clearly identifies a 21st century learning environment.

References


